

Physician assistant wages and employment, 2000-2025

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ABSTRACT

This study sought to assess physician assistant (PA) wages, make comparisons with other healthcare professionals, and project their earnings to 2025. The Bureau of Labor Statistics PA employment datasets were probed, and 2013 wages were used to explore median wage differences between large employer categories and 14 years of historical data (2000-2013). Median wages of PAs, family physicians and general practitioners, pharmacists, registered nurses, advanced practice nurses, and physical therapists were compared. Linear regression was used to project the PA median wage to 2025. In 2013, the median hourly wage for a PA employed in a clinical role was \$44.70. From 2000 to 2013, PA wages increased by 40% compared with the cumulative inflation rate of 35.3%. This suggests that demand exceeds supply, a finding consistent with similar clinicians such as family physicians. A predictive model suggests that PA employment opportunities and remuneration will remain high through 2025.

Keywords: physician assistants, wages, health workforce, health services research, economics, nurse practitioners

Physician assistants (PAs) began as an American social experiment in the mid 1960s in part to improve the efficiency and productivity of physicians.¹ PAs were seen as employees of, and supervised by, physicians. Beginning in the 1990s, concerns have been voiced about supply and demand of PAs.² Although PA shortages and surpluses have been reported at various times, little analysis has been conducted on the predictors of supply such as wages and staffing. Wages—considered as hourly for the purposes of this paper—are a sensitive indicator of demand and are embedded in the Iron Law of Wages.³ This law (theory) states that when wages are higher, the supply of labor will increase relative

to demand. Eventually higher numbers of workers in that labor market will create excess supply and depress wages. Conversely, as wages decrease, labor supply diminishes, and wages tend to increase. In a stable population, this would create a dynamic convergence toward a subsistence-wage equilibrium.³ Because the American population is growing and aging, the US Department of Health and Human Services predicts that demand is likely to exceed the supply of PAs (as well as physicians and nurse practitioners [NPs]) through 2020.⁴ In addition, declining numbers of primary care providers and the increased demand for these providers under the Affordable Care Act suggest an increasing need for providers, including PAs and NPs.

Published findings on PA compensation have generally leveraged annual survey results undertaken by professional associations to express what PAs earn.^{5,6} This work relies on self-report and varying samples of practicing PAs.^{5,6} Another index for wages was sought to complement these surveys.

An accurate documentation of PA earnings is needed for many reasons. Employers seek a firmer foundation for understanding the dollar amount needed to employ skilled labor. PA graduates desire a better understanding of what their skills might command in the employment market, including both relative and projected wages. Prospective applicants to PA programs want information to help them determine career path decisions and opportunity costs of more education. Practicing PAs may want to use this information when considering changes in specialty or location. A reference point for issues of pay segregation in certain populations (such as men or women, specialty, or part-time status) is needed to support financing and labor economic theories. Finally a comparison of regional information about PA wages is important because the cost of living index varies widely depending on employment location. Differences in wages and location can help researchers better understand the supply markets in various sectors of PA employment.

This study purposely examines wages instead of salary or total compensation. Wages are what can be earned per hour without consideration of embedded employee benefits that might accompany employment. Finally, wages are important indicators of demand in a free market society and can be compared longitudinally against other social cycles, such as employment vacancies and surpluses.

PAs are of interest to economists and public health researchers for a number of reasons. They are the principal providers

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of primary care in many communities.⁷ Furthermore, substantial national growth in the number of PAs has occurred in spite of wide state variations in scope of practice regulations and physician supervision.^{8,9} PAs and NPs may be influencing healthcare markets due to their growing presence and ability to help meet demand for services.⁷ Beginning this decade, PAs and NPs outnumber family physicians and are the principal providers in many small communities.¹⁰

The focus of this research is the nature of healthcare market equilibrium (employment setting, wages, etc.) and the influences of variables such as allocation of specialty, types of employer, location, and change across time. One of the strongest indicators of market demand is when cost continues to exceed inflation, whether for goods or services. In this case, the healthcare professions labor market is considered a service. The research question is: *Does the demand for PAs exceed the supply of PAs?* The hypothesis (based on periodic surveys of PA salaries and anecdotal reports of ample employment vacancies) is that demand has historically exceeded supply. One test of this hypothesis is whether national PA wages have exceeded inflation across time.

METHODS

Data were obtained from the Occupational Employment Statistics (OES) program of the US Department of Labor's Bureau of Labor Statistics (BLS).¹¹ The program collects hourly wage information from employers and computes annualized wages based on the hourly wage x 2,080 hours (40 hours per week x 52 weeks). Estimates are provided for more than 800 occupations and are broken out by state and by employer classification. The OES program collects data through a business survey of about 1.2 million establishments over 3-year rolling sample periods to produce annual estimates. A statistically representative sample of employers surveyed provides the worker employment and wages

by occupation. Workers are classified in their standard occupational classification (SOC) and employment by their job duties, not by licensing or job title. Therefore, a person with a PA license working as a hospital administrator would be counted as a hospital administrator in the OES data, not as a PA. The OES sample data are benchmarked to data from the quarterly census of employment and wages program.

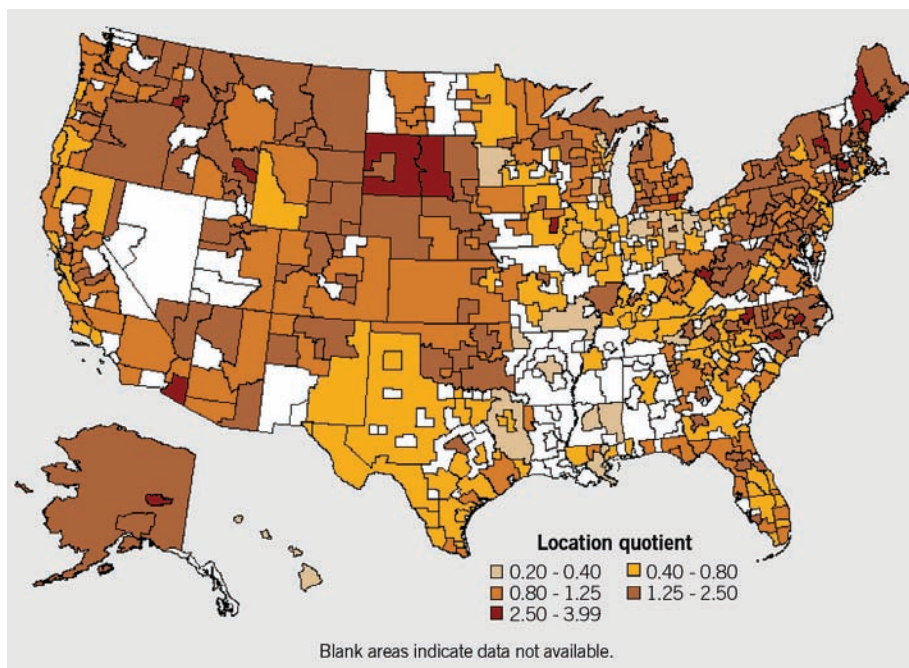


FIGURE 1. Location quotient of PAs by area, May 2013¹¹

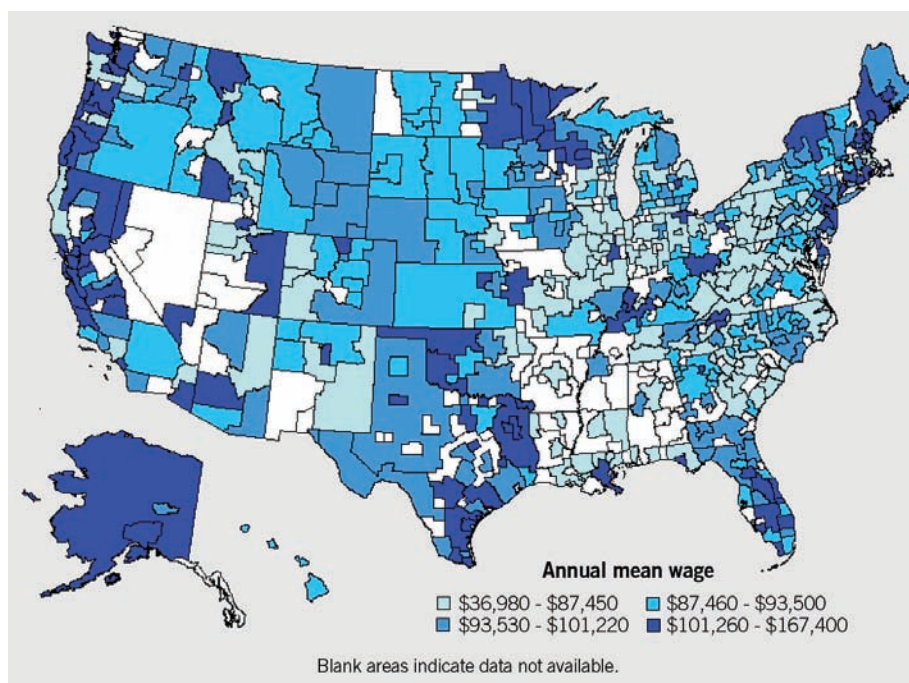


FIGURE 2. Annual mean wage of PAs by area, May 2013¹¹

Although the occupational classifications have changed over the years, the PA job description has remained fairly constant over the full-time period. In 1997 and 1998, the occupation code for PA was 32511. For the years 1999 to 2013, it was 29-1071. For the purposes of this study, wage data were extracted for PAs for a 14-year period (2000 to 2013). Wage data were available for earlier years but appeared inconsistent with other reported examinations of practicing PAs and PA wages for the time. OES statistics for each occupation code, although variable by year, typically include means and percentile breakouts of 10%, 25%, 50%, 75%, and 90%. Sex, age, and type of PA specialty practices are not broken out within this dataset. Estimates are based on all clinically employed PAs.

STUDY AIMS

The study sought to:

- Longitudinally examine median wages for clinically practicing PAs, adjusting for or contrasting with the inflation rate (using the Consumer Price Index [CPI] as a proxy for inflation).
- Project median PA wage through 2025.
- Describe 2013 variation in state PA wages and wages in principal employer designations (physician offices, outpatient care centers, general medical and surgical hospitals, and offices of other healthcare professionals).
- Describe state variation in PA salaries in the current year and as a function of inflation-adjusted wage changes from 2000 to 2013.
- Describe 2012 and 2013 salary and wage differences between PAs and advanced practice registered nurses (NPs, nurse midwives, and nurse anesthetists).

STATISTICAL ANALYSIS

The BLS computes statistics for each year and provides the data in public spreadsheet format or as HTML documents. All analyses, including trend estimates, were conducted with SPSS (19.0). Because wage (or salary) does not follow a normal distribution curve, the median is selected as the preferred measure of central tendency. Projections were constructed using linear and nonlinear multiple regression techniques to assess best fit.

RESULTS

According to the OES statistics, the 88,110 clinically employed PAs in 2013 had a median hourly wage of \$44.70 (median annual wage, \$92,976). This number reflects an increase of 32,620 (58.8%) employed PAs between 2000 and 2013 with an increase in median wage of \$4.44 (9.9%), after adjusting for inflation. In 2013, PAs were employed in all 50 states, the District of Columbia, and US territories.

Figure 1 provides the distribution of PAs by location quotient—a value reflecting the ratio of the geographic area concentration of PAs to the national concentration of PAs—showing the complex relationship between region and PA distribution. Areas of PA concentration include the Northeast, the Northern Plains, and the Northwest. Figure 2 provides a geographic breakdown by annual mean wage. This is an analysis that shows high-wage clusters on the West Coast, the Northeast, Texas, Oklahoma, Florida, and Wisconsin, based on census tracts and employment.

Figure 3 provides box plots for median annual salaries for the five largest employers of PAs in 2013. These BLS employee classifications accounted for 80,550, or nearly

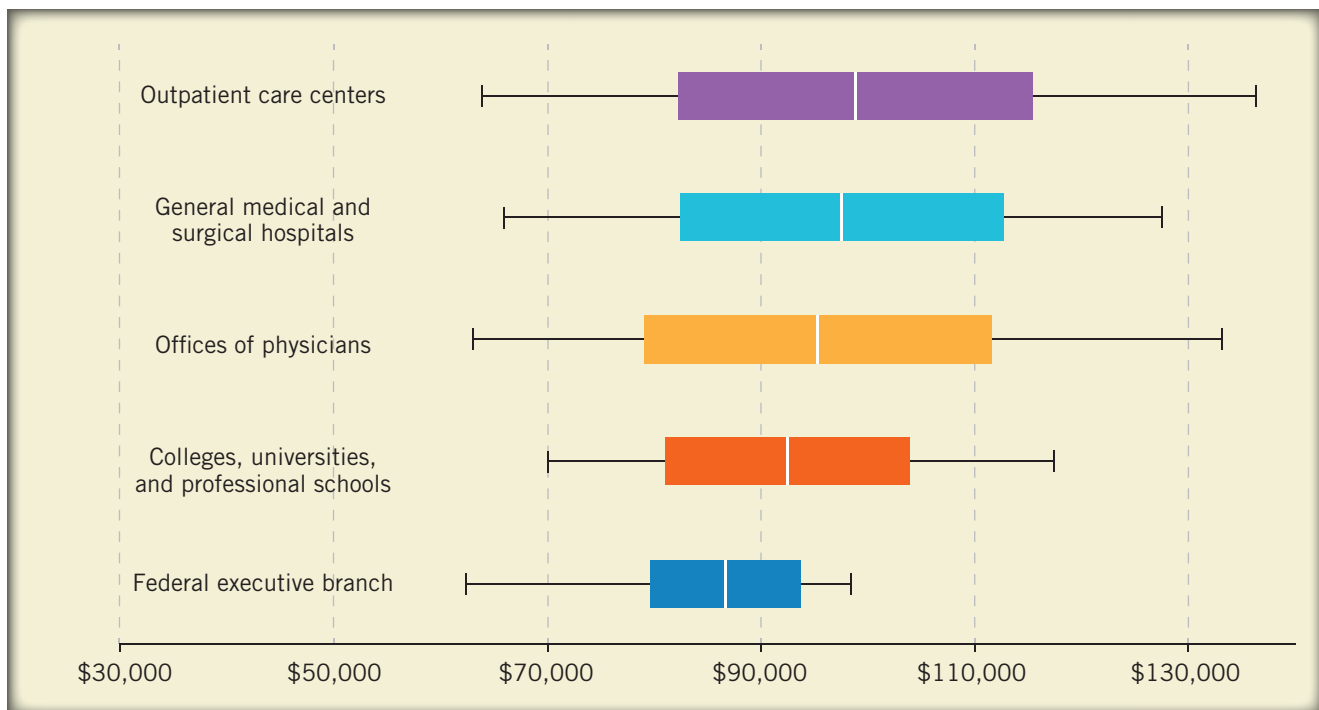


FIGURE 3. 2013 median and interquartile annual wage ranges for top five major PA employers, with 10% and 90% whiskers¹¹

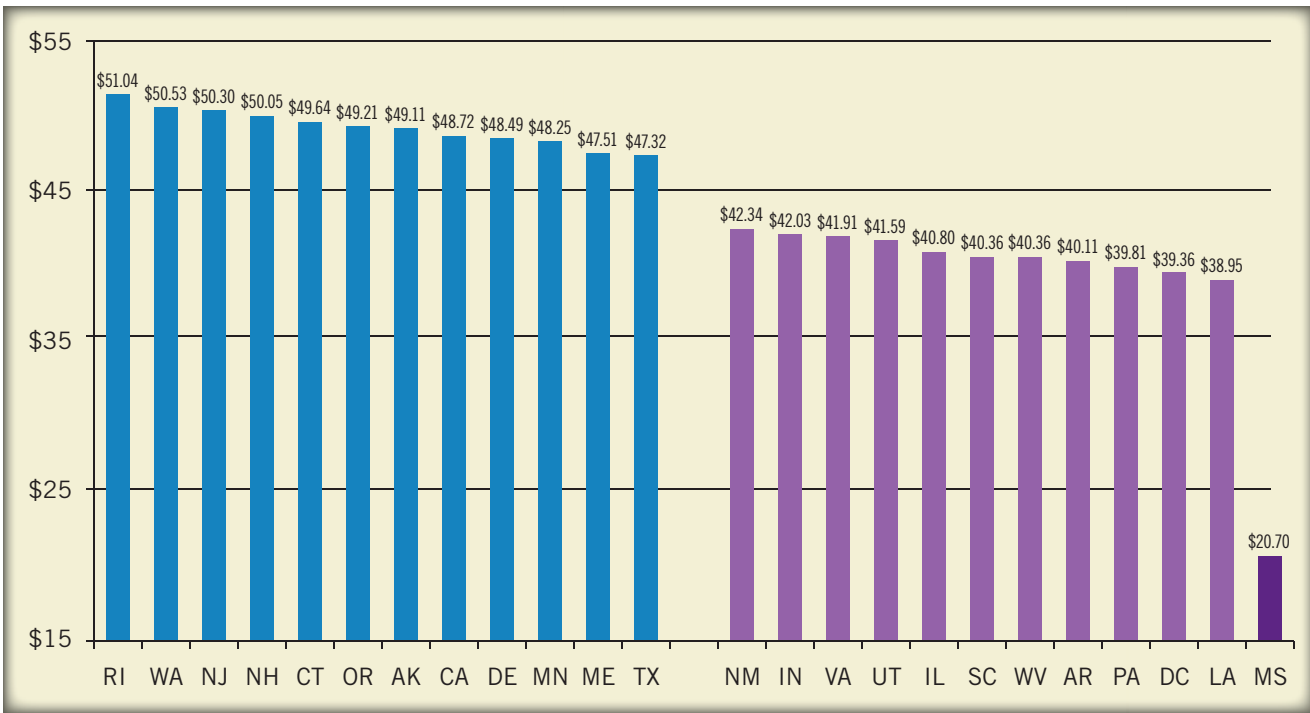


FIGURE 4. 2013 state median PA wages for the 12 highest-paying and 12 lowest-paying states¹¹

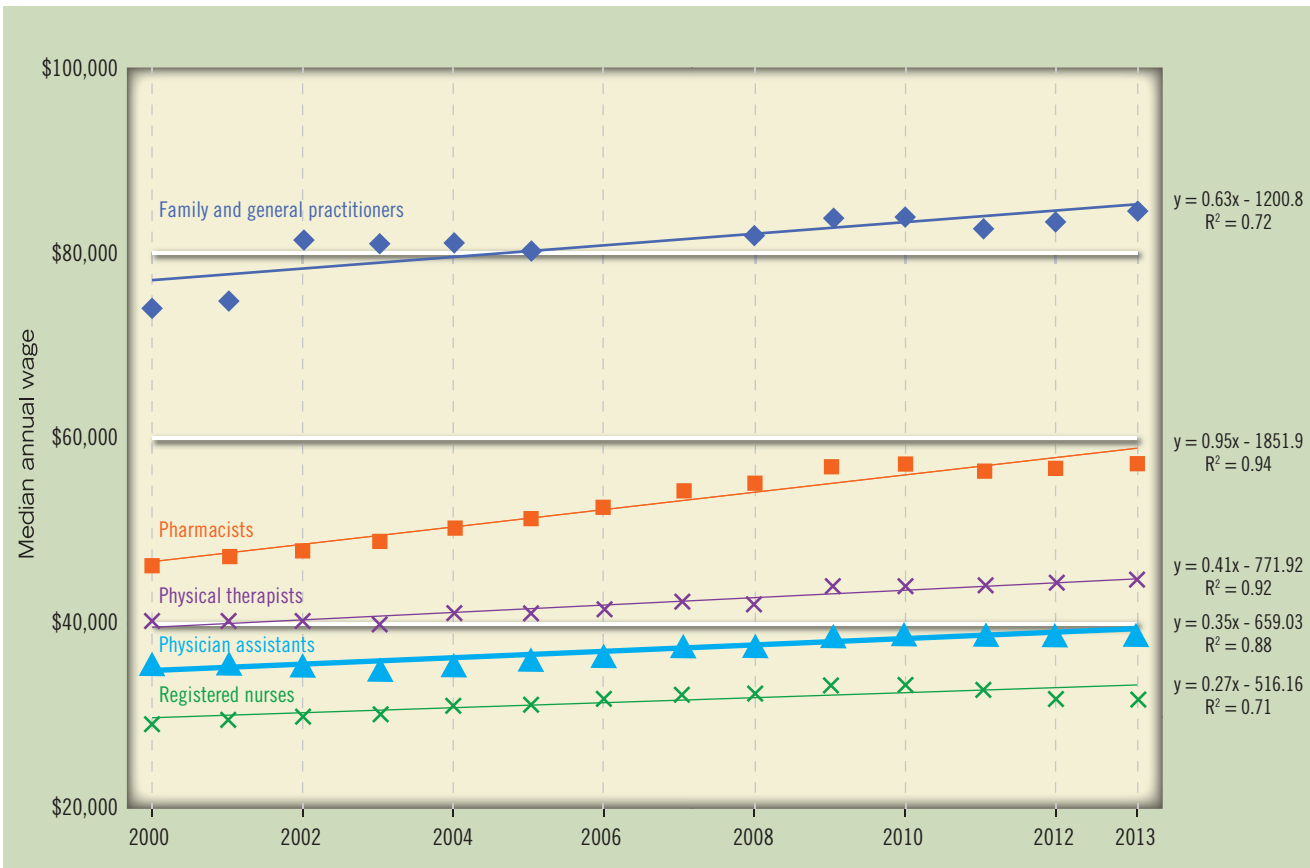


FIGURE 5. Fourteen-year median wage (adjusted for inflation) for family and general practitioners, pharmacists, physical therapists, PAs, and registered nurses¹¹

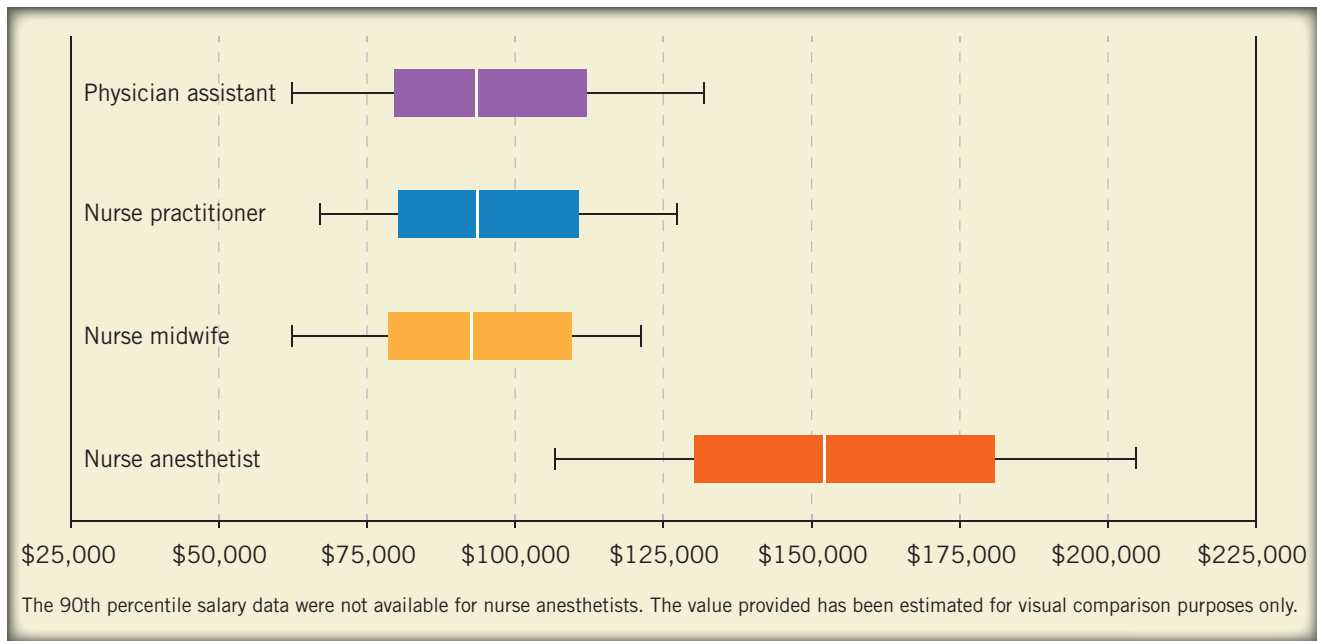


FIGURE 6. 2013 median and interquartile annual wage range with 10% and 90% whiskers¹¹

92% of all employed PAs reported in the United States in 2013. The highest annual median salary was in outpatient care centers (\$97,510) and the lowest median salaries were received in federal branch positions (\$88,358). The greatest interquartile range in salaries was in outpatient care centers (\$33,092) and physician offices (\$32,427).

Figure 4 illustrates median PA wages for the top 12 (76th percentile) and bottom 12 (24th percentile) state estimates. For the upper quartile, state wages ranged from \$51.04 to \$47.92 (Rhode Island to Texas); for the bottom quartile, wages ranged from \$42.34 to \$38.95 (New Mexico to Louisiana). The low wage for Mississippi is dismissed as an unexplained outlier. The rough interquartile range between the 76th percentile and the bottom 24th percentile of states was \$4.98. Clinically employed PAs in Rhode Island made 31% higher wages than did Louisiana PAs.

The 14-year median wage increased from 2000 to 2013 after adjusting for inflation for family physicians, registered nurses, pharmacists, physical therapists, and PAs. Each of the five healthcare professions exhibited a significant increase (each $P < 0.05$) above the rate of inflation (Figure 5). The percentage increase in median wages across the 14-year period ranged from a low of 8.4% for registered nurses to a high of 19.5% for pharmacists.

The median 2012 and 2013 PA, NP, nurse midwife, and nurse anesthetist wage results were not significantly different (Table 1). Nurse anesthetists earned significantly higher wages ($P < 0.001$). Figure 6 shows the interquartile range for annual salaries for each of these groups. Advanced practice nursing data were not available before 2012.

Linear regression was used to project median wage estimates from the current data out to 2025. Inspection of the wage curve between 2000 and 2013 revealed the presence of a slight

second-order nonlinear component. This nonlinear component did not account for significant variance other than that explained by the linear relationship and was not included in the model. Figure 7 identifies the percentage increase in PA salaries alongside the yearly inflation rate from 2000 to 2013 (and projected to 2025). The cumulative inflation rate across this period was about 35.3% and PA wages increased by about 40%, a rate significantly higher than inflation.

Figure 8 shows a complex relationship between the relative increase in wages for states across the 14-year period and incorporates the number of practicing PAs in each state. For example, Oklahoma had the fastest rising wages during the 14-year period, but little change in the number of employed PAs. Conversely, New York had the strongest climb in the number of employed PAs, but after accounting for inflation exhibited little change in wages relative to other states. At the far end of the spectrum, Arkansas's wages have been decreasing relative to inflation, and the total number of practicing PAs has also been declining.

DISCUSSION

Based on nationally collected wage history, PA wages have exceeded inflation across the 14-year period of 2000-2013. In

TABLE 1. 2012-2013 PA, NP, nurse midwife, and nurse anesthetist median wages ¹¹		
	2012	2013
PA	\$43.72	\$44.70
NP	\$43.25	\$44.55
Nurse midwife	\$43.08	\$44.37
Nurse anesthetist	\$71.23	\$72.64

the aggregate, this trend appears constant in spite of economic downturns. This trend is consistent with periodic AAPA salary surveys and suggests that demand for PA services has consistently exceeded supply. This demand for clinician employment cannot be projected to other autonomous and semiautonomous providers such as NPs, nurse midwives, and nurse anesthetists because the data collection has not been consistent during this period. However, the wage parity of PAs, NPs, and nurse midwives suggests that they may be viewed as mutually interchangeable and demand could be considered as one.

In spite of the fact that the US physician corps has doubled since 1990, and the number of PAs and NPs has quintupled, the ratio of physicians per capita in 2012 is one of the lowest of the 35 modernized countries.^{12,13} Even with this rapid growth, the growing and aging US population, availability of advancing technology, and steady increases in use of medical services per capita all contribute to the increased demand for PAs.

The association between wage and the distribution of PAs nationally is complex, influenced by combined base and bonus salaries, specialty, work setting, overtime, and years of experience. Cost of living, state-defined scope of practice,

proximity to training programs, and local demand each contribute to the distribution of PAs and the real value of their associated salaries. Although the 2013 AAPA survey data point to important and complex questions about clinically active PAs, these data remain a relatively small sample (less than 20%) based on self-reported salaries. Despite these limitations, the PAs surveyed reported a similar median salary, not including bonuses, of about \$90,000.⁵

LIMITATIONS

This study has a number of limitations. PAs were not broken out by specialty or years of practice, variables that significantly influence wages.¹⁴ The annual median wage estimates do not account for the local economy, and significant variations might occur if accounting for local cost of living. In addition, improved estimates of economic reward would include the value of bonuses, retirement, health insurance, and other employer-provided benefits. Median annual wage estimates would also need to account for total number of hours worked. Projections from the median of 2013 salaries without consideration of these critical determinants of true economic reward must be regarded with caution.

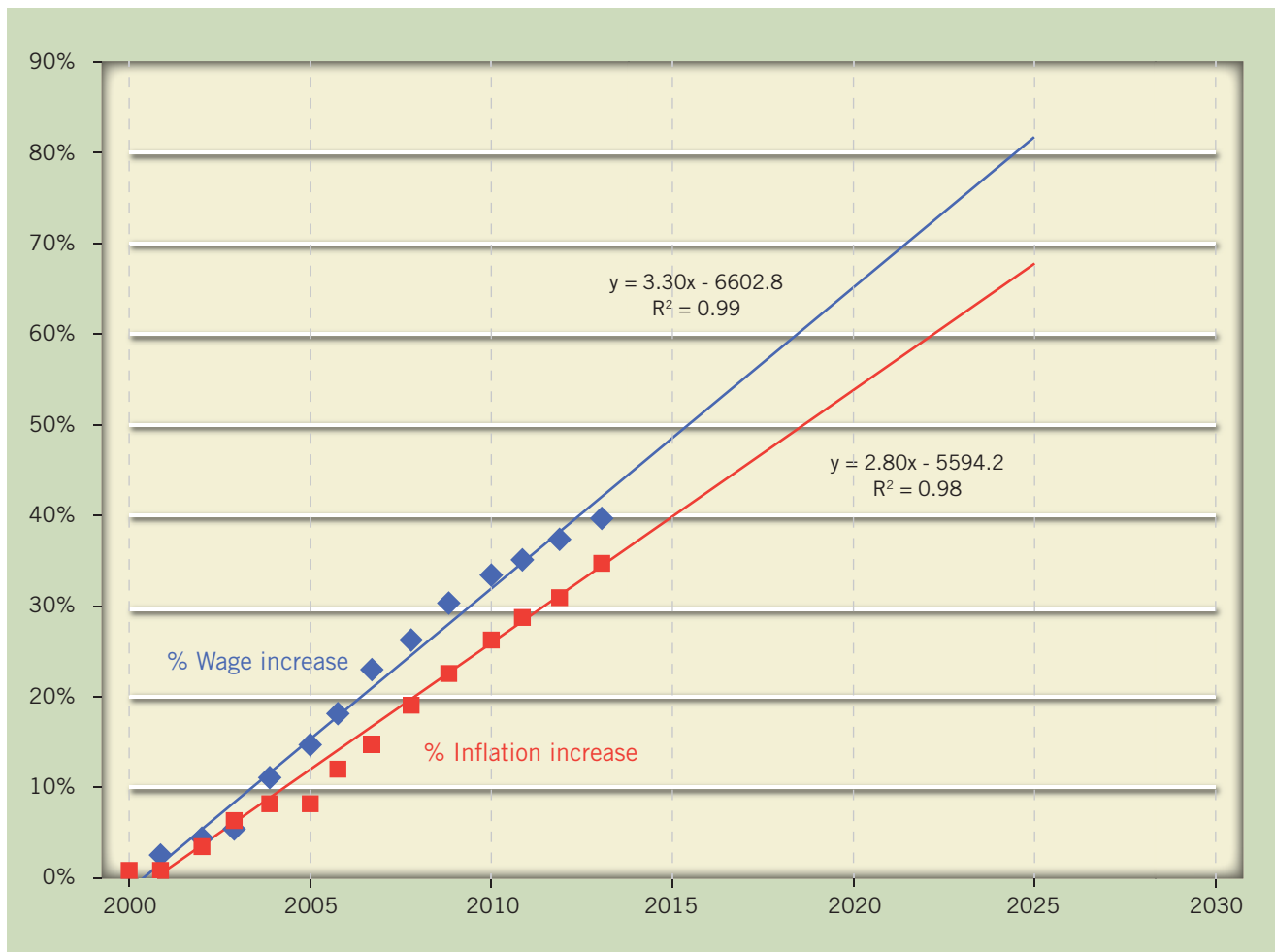


FIGURE 7. Percentage increase in unadjusted wage and inflation projected to 2025¹¹

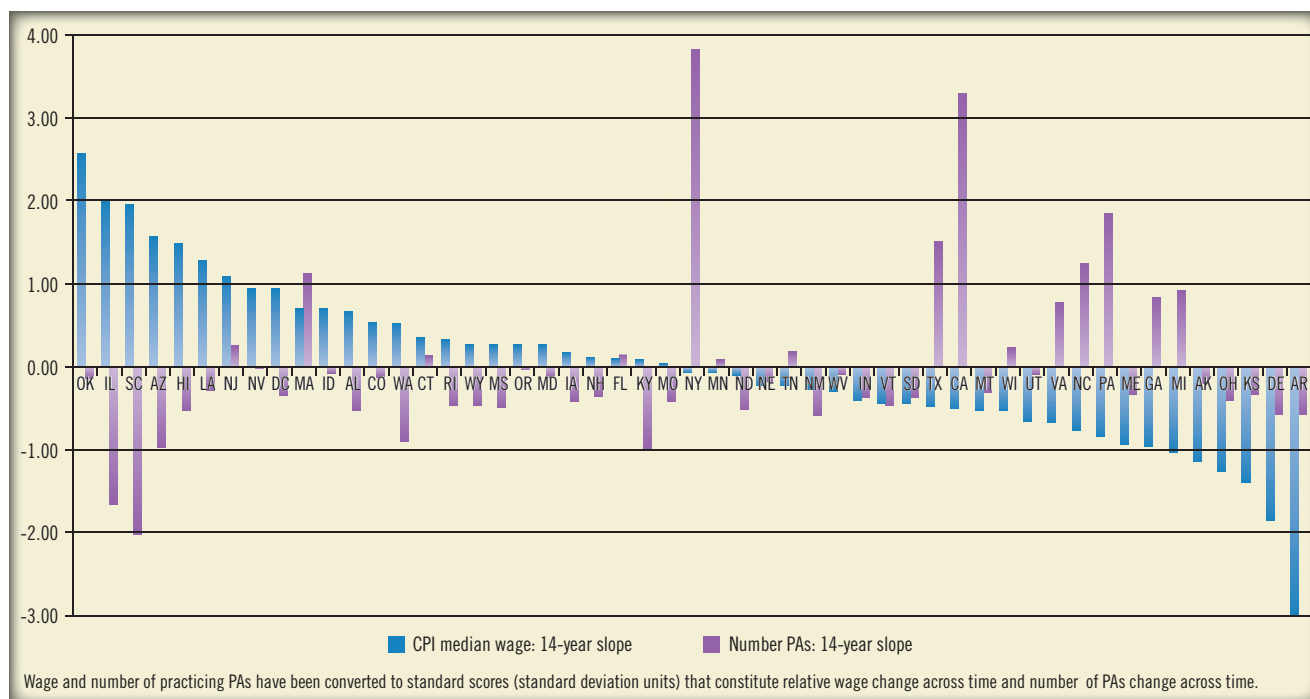


FIGURE 8. 2000-2013 PA rate of change in median wage and rate of change in number of PAs: Rate of change sorted by wage¹¹

Some researchable questions have been raised but not addressed in this paper. The complex relationship between the distribution of PAs, their total compensation, and population density warrants further consideration. The nature and characteristics of dual employment requires further analysis.¹⁵ Finally, wage parity based on sex continues to be an issue in many PA settings, but was not addressed here.¹⁶

CONCLUSION

The employment and wage history of PAs is promising, and their demand seems generally above supply as reflected in their increasing annual recompense. The median annual PA wage in 2013 is substantially above the median annual US household income of \$52,100, suggesting a profession that is adequately remunerated. Furthermore, the PA wage has consistently exceeded inflation for more than a decade, suggesting this American experiment in a novel type of provider has been a sound one. New entrants into this profession should find these results reassuring and those well into their career heartening that income is not likely to erode any time soon. **JAAPA**

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